



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]2006 = 107

PowerEdge R720 (Intel Xeon E5-2667 v2, 3.30 GHz)

SPECfp_base2006 = 102

CPU2006 license: 55

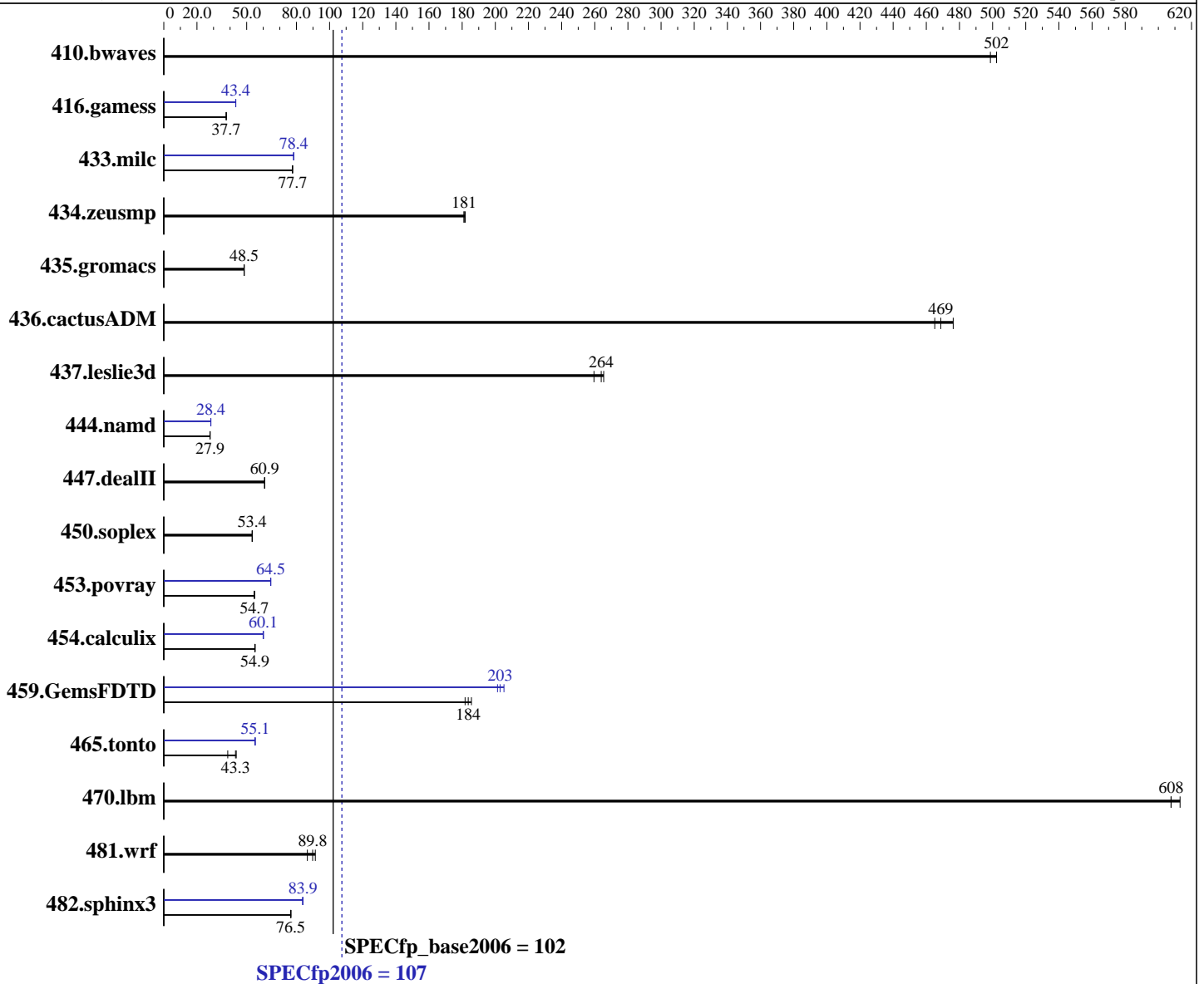
Test date: Aug-2013

Test sponsor: Dell Inc.

Hardware Availability: Sep-2013

Tested by: Dell Inc.

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2667 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz
 CPU MHz: 3300
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: SUSE Linux Enterprise Server 11 SP3 (x86_64) 3.0.76-0.11-default
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext2
 System State: Run level 3 (multi-user)

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L3 Cache: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)
 Disk Subsystem: 1 x 1 TB 7200 RPM SATA
 Other Hardware: None

Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<u>27.1</u>	<u>502</u>	27.1	502	27.3	499	<u>27.1</u>	<u>502</u>	27.1	502	27.3	499
416.gamess	519	37.7	520	37.6	<u>520</u>	<u>37.7</u>	<u>451</u>	<u>43.4</u>	451	43.4	452	43.4
433.milc	118	77.7	<u>118</u>	<u>77.7</u>	118	77.6	117	78.4	<u>117</u>	<u>78.4</u>	117	78.3
434.zeusmp	<u>50.2</u>	<u>181</u>	50.0	182	50.2	181	<u>50.2</u>	<u>181</u>	50.0	182	50.2	181
435.gromacs	<u>147</u>	<u>48.5</u>	147	48.5	147	48.5	<u>147</u>	<u>48.5</u>	147	48.5	147	48.5
436.cactusADM	25.7	465	<u>25.5</u>	<u>469</u>	25.1	476	<u>25.7</u>	465	<u>25.5</u>	<u>469</u>	25.1	476
437.leslie3d	<u>35.6</u>	<u>264</u>	35.4	265	36.2	260	<u>35.6</u>	<u>264</u>	35.4	265	36.2	260
444.namd	287	27.9	<u>287</u>	<u>27.9</u>	288	27.9	283	28.4	283	28.4	<u>283</u>	<u>28.4</u>
447.dealII	<u>188</u>	<u>60.9</u>	188	60.9	188	60.8	<u>188</u>	<u>60.9</u>	188	60.9	188	60.8
450.soplex	156	53.4	157	53.3	<u>156</u>	<u>53.4</u>	156	53.4	157	53.3	<u>156</u>	<u>53.4</u>
453.povray	97.5	54.6	<u>97.3</u>	<u>54.7</u>	97.2	54.7	<u>82.5</u>	<u>64.5</u>	82.6	64.4	82.4	64.6
454.calculix	150	54.9	<u>150</u>	<u>54.9</u>	150	55.2	137	60.1	<u>137</u>	<u>60.1</u>	138	59.9
459.GemsFDTD	58.4	182	<u>57.8</u>	<u>184</u>	57.2	186	52.7	201	<u>52.3</u>	<u>203</u>	51.7	205
465.tonto	255	38.6	<u>227</u>	<u>43.3</u>	225	43.7	178	55.2	<u>178</u>	<u>55.1</u>	179	54.9
470.lbm	<u>22.6</u>	<u>608</u>	22.4	613	22.6	608	<u>22.6</u>	<u>608</u>	22.4	613	22.6	608
481.wrf	129	86.6	<u>124</u>	<u>89.8</u>	122	91.4	129	86.6	<u>124</u>	<u>89.8</u>	122	91.4
482.sphinx3	255	76.5	254	76.8	<u>255</u>	<u>76.5</u>	233	83.7	<u>232</u>	<u>83.9</u>	232	84.0

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS settings:
 Virtualization Technology disabled
 Execute Disable disabled
 Logical Processor disabled
 System Profile set to Performance
 Sysinfo program /root/cpu2006.1.2.ic13/config/sysinfo.rev6818
 \$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
 running on linux Wed Aug 28 13:35:13 2013

This section contains SUT (System Under Test) info as seen by
Continued on next page



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Platform Notes (Continued)

some common utilities. To remove or add to this section, see:
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2667 v2 @ 3.30GHz
  2 "physical id"s (chips)
  16 "processors"
  cores, siblings (Caution: counting these is hw and system dependent. The
  following excerpts from /proc/cpuinfo might not be reliable. Use with
  caution.)
    cpu cores : 8
    siblings  : 8
    physical 0: cores 1 2 3 4 8 9 10 11
    physical 1: cores 1 2 3 4 8 9 10 11
  cache size : 25600 KB

```

```

From /proc/meminfo
MemTotal:      264601764 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 11 (x86_64)

```

```

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 3

```

```

uname -a:
Linux linux 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013 (ccab990)
x86_64 x86_64 x86_64 GNU/Linux

```

```
run-level 3 Aug 28 08:45 last=S
```

```

SPEC is set to: /root/cpu2006.1.2.ic13
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext2  817G   71G  746G   9% /

```

```

Additional information from dmidecode:
BIOS Dell Inc. 2.0.18 08/10/2013
Memory:
8x 00AD00B300AD HMT42GR7MFR4C-RD 16 GB 1866 MHz
8x 00AD04B300AD HMT42GR7AFR4C-RD 16 GB 1866 MHz

```

(End of data from sysinfo program)



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General Notes

Environment variables set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/root/cpu2006.1.2.ic13/libs/32:/root/cpu2006.1.2.ic13/libs/64:/root/cpu2006.1.2.ic13/sh"
OMP_NUM_THREADS = "16"
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

Filesystem page cache cleared with:

```
echo 1> /proc/sys/vm/drop_caches
```

Base Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

Benchmarks using both Fortran and C:

```
icc -m64 ifort -m64
```

Base Portability Flags

```
410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64
```



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Base Optimization Flags

C benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.xml>



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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 18:58:52 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 October 2013.